

## **Maryland Water Monitoring Council Participates in National Monitoring Day**

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October 18, 2002 marked the celebration of the first annual National Water Monitoring Day. Since the signing of the Clean Water Act in 1972, efforts have been made to protect waterways and improve water quality nationwide. Many environmentalists agree that water quality has greatly improved as a result of the Clean Water Act, however it takes the combined and continued efforts of government organizations, environmental organizations and citizens to ensure that this trend continues.

The America's Clean Water Foundation (ACWF) ( <http://www.yearofcleanwater.org/> ) organized National Water Monitoring Day as a way to celebrate the 30<sup>th</sup> anniversary of the initiation of the Clean Water Act and to encourage citizens to get involved in water monitoring. Participants were asked to monitor for dissolved oxygen, pH, temperature and turbidity to provide a nationwide snapshot of water quality. In addition to increasing citizen involvement, this day increases public awareness of environmental hazards that affect water quality.

The Maryland Water Monitoring Council (MWMC) encouraged environmental organizations across the state to participate in this event by conducting sampling projects during the week of October 18<sup>th</sup>. In addition to the four parameters listed above, the MWMC encouraged the participants to conduct other monitoring activities (e.g., benthic monitoring) to provide greater insight about overall water quality.

Organizations participating statewide were asked to register their sampling sites with the ACWF, respond to several questions provided by MWMC, and submit answers to the questions, as well as all data, to the MWMC. To date, information has been received from Versar, Inc, Frederick and Calvert County Governments, Howard County Parks & Recreation, St. Mary's River Project, the Living Classrooms Foundation, Anacostia Watershed Association, and the Yamuna Foundation for Blue Water. The MWMC is still receiving data and will provide a follow-up on this issue in the next quarterly newsletter.

## **Inappropriate Discharges to Storm Drain Systems**

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Inappropriate discharges to storm drain systems, including sewage (leaking or direct connection), septage, wash and rinse water, potable water, industrial discharges or nuisance water (excess irrigation, car wash, etc.), can be significant sources of annual pollutant loads, especially in older communities. Although a number of large

municipalities nationwide have been required to develop and implement programs for detecting and eliminating inappropriate discharges under the US EPA's NPDES Phase I Stormwater Program, guidance on how to investigate, locate and eliminate these discharges is sparse. New NPDES Phase II regulations will spread this requirement to smaller communities creating a greater need for simple, low cost and effective options for detection and elimination of these discharges. To address this growing need, US EPA has sponsored the Center for Watershed Protection and Dr. Robert Pitt of the University of Alabama to develop an illicit discharge detection and elimination (IDDE) handbook.

The IDDE handbook, scheduled to be completed in draft form by the fall of 2003, is designed to be a practical "how to" manual about field and laboratory methods for identifying, tracking down and eliminating inappropriate discharges. The project includes researching techniques used in NPDES Phase I communities, reviewing laboratory and field protocols, testing new screening methods for parameters such as E. coli and detergents, establishing a unified protocol, testing and modifying the protocol in the field, preparing a handbook and providing dissemination of material and training of practitioners at national symposia. The handbook will focus on reliable methods that can be applied by resource-poor Phase II Communities and local watershed groups.

Presently, the Center's IDDE Team is finalizing a draft protocol, and will begin testing soon in selected Baltimore Metropolitan area watersheds with help from Baltimore City. University of Alabama's IDDE Team has been investigating field and laboratory techniques in Tuscaloosa, and information on their studies can be reviewed on Dr. Pitt's UA Website at <http://www.eng.ua.edu/~rpitt/Research/ID/ID.shtml>. The draft protocol calls for collecting water samples at outfalls suspected to have illicit discharges, and running a series of laboratory and field tests to determine if the discharge includes certain chemical or biological tracers that may link the discharge to certain land uses in the watershed.

### **Storm Drain Inlet Cleaning Study**

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Since 1991, Baltimore County has maintained a comprehensive Storm Drain Inlet Cleaning Program. The Watershed Management and Monitoring Section of Department of Environmental Protection and Resource Management (DEPRM) is currently conducting a study to determine the bulk density and sediment quality of the debris removed from storm drain inlets and associated pipes. This empirical data will supplant the literature values and estimated density currently used to calculate the reductions in pollutant loading from each of the county's 14 major watersheds. This project is also known as the "Vac-Con" study based on the trade name of the vehicles used to vacuum liquid and debris from the inlets and pipes.

The Vac-Con truck operators submit daily reports to this office on the location and amount of each inlet and pipe cleaned. All volumes are reported in cubic yards and are tabulated each year on a watershed basis. Pollutant load reduction calculations are based on these amounts. The material removed from the county's storm drains is assumed to be a mixture of leaf litter, grass clippings and sediment. However, an adjustment will be made for the trash component, i.e. plastics, bottles and other debris, of the loads being sampled.

Based on similar research conducted in Alameda, Ca., this study method will involve taking composite samples of the liquid and debris mixture as it is discharged from the Vac-Con trucks at a sanitary landfill. Prearranged cleaning routes will ensure the samples are from a single land use. The samples will be analyzed at the county's Department of Public Works lab for Cu, Zn, Cd, Pb, BOB, COD, Total Phosphorus, Ortho Phosphorus, Nitrates, Nitrites, Total Ammonia, FOG (Fats, Oils and Grease) and Total Petroleum Hydrocarbons. The primary measurements, however, will be the wet and dry bulk densities, and the nitrogen and phosphorus components, which were not part of the Alameda study.

The project will involve about 30 samples and should be concluded in late 2003. So far, two test-samples have been collected. Once completed, the empirical data, expressed in milligrams per kilogram (mg/kg), will be used to make a more accurate determination of the county's sediment quality and pollutant load reductions from the three major land uses in the county: residential, commercial and industrial. Baltimore County has been using the average of these three values, derived from the county's trash hauling documents, to determine its pollutant load reductions.

In an article appearing in an issue of *Watershed Protection Techniques* (Fall 1994), Mineart and Singh provided Cu, Pb, Zn and Total Petroleum Hydrocarbon values in mg/kg for storm drain sediment from residential, commercial and industrial land use areas. The average density of this material, using in-house data, was determined to be 548.3 pounds per cubic yard.

### **Water Quality Monitoring In Howard County**

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The Howard County Stream Team utilizes volunteers to help assess the water quality of Howard County streams and rivers. Volunteers monitor 50 sites throughout the county from April through October.

Water quality is determined through a biological test using macroinvertebrates. When these organisms are grouped by their pollution tolerance, they become accurate general indicators of water quality. The Howard County Department of Recreation & Parks uses a water quality method known as Benthic Rapid Bioassessment. At the test site, a net-like device called a seine, is held in the stream by one person while another stirs or kicks the stream bottom, dislodging macroinvertebrates into the seine. Once collected, a key sheet is used to group the insects according to their pollution tolerance. The insects are

placed in three groups from highly pollution tolerant to low tolerance. From these groupings we can assess the general stream health from the numbers and diversity of organisms collected.

If you are interested in volunteering to be a Stream Team member, contact Sue Muller at 410 313-4697 or [smuller@co.ho.md.us](mailto:smuller@co.ho.md.us).— Training and equipment are provided.